

New High Water Zone (NHWZ) community

The vegetation in this community type is dominated by tamarisk (Tamarix ramosissima). Other woody plants include coyote willow (Salix exigua), arrowweed (Tessaria sericea), and seepwillow (Baccharis spp.). In addition to tamarisk, non-native species include camelthorn (Alhagi camelorum), and red brome (Bromus rubens). This community became established mainly at low to mid elevations within the sand beach community following closure of Glen Canyon Dam. It usually occurs between about 18,000 and 45,000 cfs. This community is known as the lower riparian zone in the Stevens/Kearsley-elassification.

Fluvial wetland (Marsh) community

The vegetation in this community type is composed mainly of herbaceous plants such as cattail (*Typha* spp.), bulrush (*Scirpus* spp.), and common reed (*Phragmites australis*). This community became established at low elevations within the sand beach community following closure of Glen Canyon Dam. It usually occurs between about 8000 and 25,000 cfs in periodically inundated environments such as return current channels. This community is known as the hydro-riparian zone in the Stevens/Kearsley classification.

Old High Water Zone (OHWZ) community

The vegetation in this community type is dominated by Apache plume (Fallugia paradoxa upstream of river mile (RM) 40, and catclaw acacia (Acacia greggii) downstream of RM 40. Mesquite (Prosopis glandulosa) is co-dominant with catclaw acacia between RM 40-77 and RM 167-225. Other woody plants include redbud (Cercis occidentalis), netleaf hackberry (Celtis reticulata) and serub-oak (Quercus turbinella). This community occurs on pre-dam flood terraces, sand dunes, and stabilized talus slopes above the pre-dam scour zone (about 100,000 cfs stage elevation) and below desert vegetation. This community is known as the upper riparian zone in the Stevens/Kearsley classification.

Sand beach community

The sparse vegetation in this community type is dominated by Indian ricegrass (Oryzopsis hymenoides), beavertail (Opuntia basilaris), four-wing saltbush (Atriplex canescens), and ephemeral species that are adapted to frequent floods and scour events. This community has been invaded with non-native species such as camelthorn (Alhagi camelorum), Russian thistle (Salsola iberica), and red brome (Bromus rubens). Although this community occurs in the pre-dam scour zoney willows and other woody species became established in some reaches of

(below about 100,000 cfs), 5/21/01 1:31 PM lower Grand Canyon. In the Stevens/Kearsley classification, this community occurs in both the lower and middle riparian zone.

Seep and Spring communities

The vegetation in this community type is composed of a large array of herbaceous and woody species including maidenhair fern (Adiantum capillus-veneris), crimson monkey-flower (Mimulus cardinalis), golden columbine (Aquilegia chrysantha), common reed (Phragmites australis), Fremont cottonwood (Populus fremontii), and birchleaf buckthorn (Rhamnus betulaefolia). The water source for these communities can include both groundwater and surface water.

(poison ivy (Toxicodendron radicans)